CLAIMS

What is claimed is:

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1. A method comprising:

identifying partial feasible routing solutions corresponding to each of a subset of a set of wires to be routed;

merging the partial feasible routing solutions to identify one or more feasible routing solutions for the set of wires to be routed.

2. The method of claim 1 further comprising:

selecting a routing solution from the feasible routing solutions.

3. The method of claim 1 further comprising:

sorting the identified partial feasible routing solutions and feasible routing solutions by a first user-selected cost function.

4. The method of claim 3 further comprising:

re-sorting the identified partial feasible routing solutions and feasible routing solutions by a second, different user-selected cost function.

5. The method of claim 1 further comprising:

limiting the number of partial feasible routing solutions identified to a first number; and

limiting the number of feasible routing solutions to a second number.

6. The method of claim 5 wherein merging comprises:

merging partial feasible solutions in a routing tree, wherein the number of partial feasible routing solutions at each node of the routing tree may be limited according to a user-specified limitation.

7. The method of claim 5 wherein identifying partial feasible routing solutions comprises:

generating Hanan's graph;

identifying a first partial feasible routing solution;

adding an obstacle to the first partial feasible routing solution; and

identifying a second, different partial feasible routing solution.

8. The method of claim 7 wherein adding an obstacle and identifying a different partial feasible routing solution are repeated until there are no more partial feasible routing solutions or until a user-specified limitation on the number of partial feasible routing solutions has been reached, whichever occurs first.

9. A method comprising:

constructing multiple partial feasible routing trees, each of the partial feasible routing trees identifying a set of partial feasible routing solutions for a subset of a set of wires to be routed; and

merging the multiple partial feasible routing trees to identify a set of feasible routing solutions for the set of wires to be routed.

10. The method of claim 9 wherein constructing multiple partial feasible routing trees comprises:

determining partial feasible routing solutions for each of the subset of wires to be routed until all partial feasible routing solutions have been identified or until a user-specified limit on the number of partial feasible routing solutions has been reached, whichever occurs first.

11. The method of claim 10 wherein determining partial feasible routing solutions comprises:

generating Hanan's graph;

identifying a first partial feasible routing solution;

adding an obstacle to the first partial feasible routing solution; and

identifying a second, different partial feasible routing solution.

12. The method of claim 10 further comprising:

determining a cost of each partial feasible routing solution according to a first user-specified cost function; and

ordering the partial feasible routing solutions by the cost.

13. The method of claim 12 wherein merging comprises:

merging the partial feasible routing solutions in increasing order of cost such that the feasible routing solutions are also ordered by cost.

14. The method of claim 13 further comprising:

re-ordering the partial feasible routing solutions and feasible routing solutions according to a second user-specified cost function.

15. A method comprising:

determining a first set of possible routes between a first set of points in an integrated circuit layout;

determining a second set of possible routes between a second set of points in the integrated circuit layout;

merging the first and second sets of possible routes to determine a third set of possible routes, the third set of possible routes including possible routes from the first and second sets of possible routes that do not conflict.

16. The method of claim 15 further comprising:

ordering the first and second sets of possible routes by cost according to a first user-specified cost function.

17. The method of claim 16 further comprising:

limiting the number of possible routes in the first, second and third sets according to one or more user-specified limitations.

18. The method of claim 15 wherein the first, second and third sets are organized as a routing tree, a root of the routing tree to include one or more possible routes for all wires to be routed.

19. The method of claim 16 further comprising:

reordering the possible routes by cost according to a second user-specified cost function.

20. An apparatus comprising:

an integrated circuit device having wires routed according to a method comprising:

identifying partial feasible routing solutions corresponding to each of a subset of a set of wires to be routed;

merging the partial feasible routing solutions to identify one or more feasible routing solutions for the set of wires to be routed; and

selecting the routing from the one or more feasible routing solutions.

21. The apparatus of claim 20 wherein the method further comprises:

ordering the partial feasible routing solutions by cost according to one or more user-specified cost functions.

22. A data storage medium storing instructions to be executed by a computer system, the instructions comprising:

a maze router to determine partial feasible routing solutions between each of a subset of a set of wires to be routed; and

a deferred merging router to merge the partial feasible routing solutions to generate one or more feasible routing solutions.

23. The data storage medium of claim 22 further storing instructions comprising:

a first estimation engine to determine a first cost of each partial feasible routing solution and each feasible routing solution according to a first user-specified cost function,

the deferred merging router responsive to the first estimation engine to order the partial feasible routing solutions and the feasible routing solutions by the first cost.

24. The data storage medium of claim 22 wherein the maze router is responsive to a user-specified limitation to limit the number of partial feasible routing solutions and feasible routing solutions determined for any of the subset of wires to be routed.

25. The data storage medium of claim 24 wherein the deferred merging router organizes the partial feasible routing solutions in a routing tree to identify the feasible routing solutions.

26. The data storage medium of claim 23 wherein

the deferred merging router is responsive to a second estimation engine to re-order the partial feasible routing solutions and the one or more routing solutions according to a second user-specified cost function.

27. A data storage medium storing instructions which, when executed by a computer system, cause the computer system to perform a method comprising:

identifying partial feasible routing solutions corresponding to each of a subset of a set of wires to be routed;

merging the partial feasible routing solutions to identify one or more feasible routing solutions for the set of wires to be routed.

28. The data storage medium of claim 27 further storing instructions which, when executed by a computer system cause the computer system to perform a method further comprising:

sorting the identified partial feasible routing solutions and feasible routing solutions by a first user-selected cost function.

29. The data storage medium of claim 28 further storing instructions which, when executed by a computer system cause the computer system to perform a method further comprising:

re-sorting the identified partial feasible routing solutions and feasible routing solutions by a second, different user-selected cost function.

30. The data storage medium of claim 27 further storing instructions which, when executed by a computer system cause the computer system to perform a method further comprising:

limiting the number of partial feasible routing solutions identified to a first number; and

limiting the number of feasible routing solutions to a second number.